

CLAIMS

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1. A method of forming a semiconductor structure, comprising:
forming an isolation region in a semiconductor substrate;
wherein a first oxide layer is on said substrate,
a first sacrificial layer is on said first oxide layer, and
a first nitride layer is on said first sacrificial layer.
2. The method of claim 1, wherein a second sacrificial layer is between said first sacrificial layer and said first oxide layer.
- 10 3. The method of claim 2, wherein said first sacrificial layer comprises silicon oxide, said second sacrificial layer comprises silicon nitride, said isolation region comprises an oxide, and said substrate comprises silicon.
- 15 4. The method of claim 3, further comprising:
removing said first nitride layer;
removing said first sacrificial layer; and
removing said second sacrificial layer.
5. The method of claim 3, wherein said first and second sacrificial layers each have a thickness less than the thickness of said first nitride layer.
- 20 6. The method of claim 5, wherein
said first sacrificial layer has a thickness of 10 to 250 Å; and
said second sacrificial layer has a thickness of 10 to 500 Å.
7. The method of claim 3, wherein said forming an isolation region comprises:
25 etching a trench into said substrate; and
filling said trench with said oxide.
8. The method of claim 7, further comprising, prior to said forming said isolation region:

forming said first oxide layer on said substrate by thermal oxidation;

5 forming said second sacrificial layer on said first oxide layer by CVD;

forming said first sacrificial layer on said second sacrificial layer by CVD; and

10 forming said first nitride layer on said first sacrificial layer by CVD.

9. The method of claim 4, further comprising implanting ions in said substrate through said first oxide layer.

10. A method of forming a semiconductor device, comprising:
forming a semiconductor structure by the method of claim 9; and
forming a semiconductor device from said semiconductor structure.

11. A method of forming an electronic device, comprising:
forming a semiconductor device by the method of claim 10; and
forming an electronic device, comprising said semiconductor device.

12. A method of forming a semiconductor structure, comprising:
removing a first nitride layer and a first sacrificial layer;
wherein a first oxide layer is on a substrate,
said first sacrificial layer is on said first oxide layer, and
said first nitride layer is on said first sacrificial layer.

13. The method of claim 12, wherein a second sacrificial layer is between said first sacrificial layer and said first oxide layer.

14. The method of claim 13, further comprising removing said second sacrificial layer, and

wherein said first sacrificial layer comprises silicon oxide, said second sacrificial layer comprises silicon nitride, said isolation region comprises an oxide, and said substrate comprises silicon.

15. The method of claim 14, wherein said first and second sacrificial layers each have a thickness less than the thickness of said first nitride layer.

16. The method of claim 15, wherein
said first sacrificial layer has a thickness of 10 to 250 Å; and
said second sacrificial layer has a thickness of 10 to 500 Å.

17. The method of claim 14, further comprising implanting ions in
said substrate through said first oxide layer.

18. A method of forming a semiconductor device, comprising:
forming a semiconductor structure by the method of claim 17;
and
forming a semiconductor device from said semiconductor
structure.

19. A method of forming an electronic device, comprising:
forming a semiconductor device by the method of claim 18; and
forming an electronic device, comprising said semiconductor
device.

20. In a method of forming an isolation region in a semiconductor
device, including forming an isolation nitride on a substrate, the improvement
comprising forming a first sacrificial layer between said isolation nitride and
said substrate.

21. The method of claim 20, further comprising forming a second
sacrificial layer between said first sacrificial layer and said substrate.

22. The method of claim 21, wherein said first sacrificial layer comprises silicon oxide, and said second sacrificial layer comprises silicon nitride.